

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office

INTRA-AGENCY MEMORANDUM

Permit Writer	Keith Sandifer	Date		
Air Permit Manager		Date		
Memo To	Air Permit File			
Facility Name	Morgan Lumber Company, Inc.			
Registration Number	30996			
County/City	Charlotte County			
Decimal Coordinates	36.83025	Latitude	-78.65179	Longitude
Elevation (feet)	452			
Distance to Nearest Class I Areas (select one)	>10K	SNP (km)		JRF (km)
FLM Notification (Y/N)	N	Required if less than 10K (minor), 100K (state major)		
NET Classification (A, SM, B)	A	Before permit action	A	After permit action
Title V Major Pollutants	VOC	Before permit action	VOC	After permit action
PSD Major Source (Y/N)	N	Before permit action	N	After permit action
PSD Major Pollutants	None	Before permit action	None	After permit action

I. Introduction

Morgan Lumber Company, Inc. operates a lumber yard and dry kiln operation located at 628 Jeb Stuart Highway in Red Oak, (Charlotte County) Virginia. This site currently includes a sawmill, a planner mill, a continuous dry kiln, a batch dry kiln, a 20 MMBtu/hr wood-fired boiler, and a 15.0 MMBtu/hr (heat input) / 3.13 ton/hr wood shaving system.

On June 3, 2016, an application (dated June 2, 2016) was received from Morgan Lumber Company, Inc. (MLC) to construct and operate another continuous kiln. Also, the MLC application contained a request to shutdown the batch kiln (ES-2), the wood-fired boiler (ES-1) and the Log shaving and drying system (ES-3/ES-4). The mutual shutdown letter was signed on July 14, 2016 leaving the lumber mill and one continuous kiln (ES-5/ES-6). Additional information was received on August 17, 2016 (dated August 10, 2016), September 15, 2016, and October 7, 2016. The October 6th information (received October 7, 2016) included the content and amount of the condensate to be collected from the kilns.

The September 15, 2016 email included a reference that the burner for the new kiln was rated at 35 MMBtu/hr instead of 25 MMBtu/hr like the one currently in operation.

A full compliance evaluation with site visit was completed on June 16, 2015. The facility was in compliance with their permits.

II. Emission Unit(s) / Process Description(s)

Continuous Dry Kiln (CDK) (ES-7/ES-8)

The new kiln (CDK-2, ES-7/ES-8) will be like the one (CDK-1 ES-5/ES-6) permitted on January 4, 2010 and amended permit on August 16, 2010.

The continuous dry kiln (CDK-2) will be a USNR Trip Length continuous dry kiln with a direct-fired 35 MMBtu/hr (CDK 1 only has a 25 MMBtu/hr burner) green wood fired sloped grate burner (just like ES-5/ES-6). Like CDK-1 CDK-2 will operate on a continuous basis, to dry southern yellow pine. It will have two tracks, with counter-current flow of the lumber from each end of the kiln. Also, unlike a batch kiln, temperatures in the CDK will differ in different sections of the kiln, ranging from a high temperature near 230°F in the main chamber where the burner is located, to a lower temperature near 170°F in the final chamber (post dry/equalizing) near the end/entrance of the kiln. The kiln will be 166 feet long and have the capacity of drying 7.774 MBdft/hr (68,100 MBdft per year), based on a drying time of 31 hours and kiln volume of 241 MBdft.

Emissions of concern are VOCs, NO_x, CO, and HAPs. The HAPs of concern are acetaldehyde, acrolein, formaldehyde, methanol, and phenol.

The drying process also creates a condensate that is collected at each end of both kilns. Under full processing load, approximately 4,500 gallons will be collected from each kiln per day. The difference in Btu rating does not affect the capacity of the kiln. It is expected that this condensate will be evaporated or conveyed to a pond and evaporated. The pond would be constructed on site. The condensate would be evaporated from the pond. An analysis of the condensate was performed and results submitted to DEQ on October 7, 2016. This submittal shows the emissions (both VOC and HAPs) calculations from the kiln condensate.

The facility has asked for a facility limit of 111,000 MBdft from both kilns.

III. Regulatory Review

A. 9VAC5 Chapter 80, Part II, Article 6 – Minor New Source Review

The provisions of Article 6¹ apply throughout Virginia to (i) the construction of any new stationary source, (ii) the construction of any project (which includes the affected emissions units), and (iii) the reduction of any stack outlet elevation at any stationary source.

The project includes construction of a new continuous kiln (CDK 2 ES-7/ES-8), revision of CDK 1 ES-5/ES-6 kiln throughput limit, establishing annual emission limits for the continuous kilns ES-7/ES-8 and ES-5/ES-6 and handling the kiln condensate.

The project has no affected emissions units listed in 9 VAC 5-80-1105 B. In determining if a project is exempt under 9VAC5-80-1105 D, a calculation of the uncontrolled emission rate (UER) increase from the project is required. The project's increase is the sum of the UER increases from each affected emissions unit not listed in 9VAC5-80-1105 B. An emissions unit's increase is the difference between the new UER after the project (NUE) and the current UER (CUE) for that emissions unit and cannot be less than zero. See Spreadsheet – 30996 *Continuous Kiln calcs.xlsx* for uncontrolled calculations.

¹ Language is paraphrased from 9VAC5-80-1100.

As shown in the summary table below, the Morgan Lumber's UER (project's increase) for VOC and NO_x exceed the respective permitting threshold; therefore, the Morgan Lumber project is subject to the permitting requirements of Article 6.

	CUE (TPY)	NUE (TPY)	[UER][Increase] (TPY)	Exemption* (TPY)
CO	62.73	157.7	94.97	100/100
NO _x	22.98	57.8	34.8	40/10
VOC	140.1	296.07**	155.97**	25/10

*the exemption thresholds listed for 9VAC5-80-1105 C/9VAC5-80-1105 D

** The VOC include 0.51 tons/yr of VOC from the kiln condensate

HAPs

As described in Section III.E, the affected emissions units (i.e., continuous kilns) are in a source category subject to a standard promulgated pursuant to 40 CFR 63 (Subpart DDDD Plywood and Composite Wood Products MACT). Therefore, the project is exempt from the state toxics rule (9VAC5-60 Article 5).

As a state major modification, the project must meet the following additional requirements:

- a 30-day public comment period with a public hearing and comments must be accepted for 15 days following the hearing (minimum 45 total public comment days)
- Localities particularly affected must be notified
- Federal Land Manager (FLM) notification is not required per the memorandum of understanding due to the proximity to each Class I area (>100 km)

These requirements are further discussed in Section XI of this document.

Further discussion of the review for Article 6 permitting takes place in Section IV (BACT).

B. 9VAC5 Chapter 80, Part II, Article 8 and Article 9 – PSD Major New Source Review and Non-Attainment Major New Source Review

Charlotte County is considered to be in attainment for all air quality standards and Nonattainment NSR does not apply.

After issuance of this permit, the facility does not have the PTE any NSR-regulated pollutant at major stationary source thresholds. This project by itself does not have a major stationary source PTE. PSD review does not apply.

C. 9VAC5 Chapter 50, Part II, Article 5 – NSPS

The kilns are not subject to any 40 CFR 61 NESHAPS requirements.

D. 9VAC5 Chapter 60, Part II, Article 1 – NESHAPS

The kilns are not subject to any 40 CFR 61 NESHAPS requirements.

E. 9VAC5 Chapter 60, Part II, Article 2 – MACT

The source does not have the potential to emit 10 tons or more of any single HAP or 25 tons or more of any combination of HAPs and is not subject to any current major source or area source MACT (see spreadsheet Attachment A - *30996 Continuous Kiln calcs.xlsx*). The Plywood and Composite Wood Products MACT (Subpart DDDD) only applies to major sources of HAPs

F. State Only Enforceable (SOE) Requirements (9 VAC 5-80-1120 F)

There are no State-Only Enforceable requirements in the permit.

IV. Best Available Control Technology Review (BACT)

Presumptive BACT for area source lumber kilns is operation of the lumber kiln in accordance with the manufacturer's operating recommendation and no add-on controls.² The permit requires MLC to "Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum."

Because of the low VOC concentration in the kiln condensate and only 0.51 tons VOC per year, BACT is no add-on controls for the kiln condensate.

V. Combination of Permit Program Requirements

This combined permit document has the implementing program regulatory citation for each condition, has the most recent effective date of each condition³, and notes that each condition is state and federally enforceable unless marked SOE (9VAC5-80-1255D.1-3). Changes to permit terms and conditions to facilitate this combining action have been made in accordance with 9VAC5-80-1255E. Also, equipment that was permanently shutdown in the July 14, 2016 Shutdown Agreement and conditions referencing this equipment from the permit dated August 16, 2010 are not included in the draft permit.

VI. Summary of Actual Emissions Increase

The facility's increase in PTE is shown in the table below.

Pollutant	Past PTE (TPY)	Future PTE (TPY)	PTE Change (TPY)
VOC	140.1	241.41	101.31
NOx	22.98	39.248.9	25.92
CO	62.73	133.4	70.67

241.41 = 240.9 for kilns and 0.51 for condensate

² Lumber Kiln Emissions Calculations guidance, dated September 30, 2010.

³ The effective date is the "date" of the approval of the new kiln (ES-7/ES-8) and when the condition of the August 16, 2010 permit was amended. Because of the permanent shutdown of equipment and the amendment to the August 16, 2010 permit there are no conditions with August 16, 2010 as the effective date.

VII. Dispersion Modeling

A. Criteria Pollutants

No modeling is required for VOC emissions per Departmental guidance. There is no applicable, site-specific model for VOC (ozone).

B. Toxic Pollutants

Per DEQ September 30, 2010 guidance toxic modeling (Rule 6-5) is not required for lumber kilns unless facility wide modeling for a particular toxic pollutant is triggered by another emissions unit at the facility.

VIII. Boilerplate Deviations

The skeleton and the, generic boilerplates were used to develop the permit. There are no unapproved deviations from the boilerplate procedures. The permit does not include hourly VOC, NO_x or CO emission limits for the kilns. However, a lb/MBd-ft emission factor is included as the short term limit for the continuous kilns (ES-5/ES-6 and ES-7/ES-8). This deviation is consistent with previously permitted continuous kilns.

IX. Compliance Demonstration

Records of annual production of southern yellow pine (in thousand board feet) dried in each of the continuous kilns are required to be calculated monthly as the sum of each consecutive 12-month period are required. The continuous kilns (ES-5/ES-6 and ES-7/ES-8) burner emissions cannot be separated from the kiln emissions and therefore are included in the kiln's emission factors. Records of kiln condensate and emissions calculations are required.

X. Title V Review – 9VAC5 Chapter 80 Part II Article 1

The facility is a Title V major source due to a potential to emit (PTE) greater than 100 tons per year for at least one regulated pollutant (VOC) and has a Title V permit issued on August 21, 2012. A complete application for a significant modification to the Title V permit is due no later than 12 months after beginning operation of the new kiln (ES-7/ES-8).

XI. Other Considerations

None, except the project must meet the following additional requirements because of the facility's state major modification status as discussed in Section III.A:

- Publication by the source of a notice of application was completed on {date}. The notice was published in {newspaper}.
- The following public participation information was published in {newspaper} on {date}.

- The public comment period begins on {date}.
- The public briefing will be held at the {place} and is scheduled to begin at {time} on {date}.
- The public hearing will be held at the {place} and is scheduled to begin at {time} on {date}.
- The comment period will end on {date}.
- {localities particularly affected}, “localities particularly affected”, were notified by letter dated {date}.
- EPA, Region III and {affected states} were notified by letter dated {date}.]

[Added {date}]

The public hearing was conducted on {date}. The public hearing report is contained in Attachment {?} to this analysis. The Agency’s responses to public comments document is contained in Attachment {?} to this analysis.]

XII. Recommendations

Approval of the draft permit is recommended.

Attachments

Attachment A – 30996 *Continuous Kiln Calcs.xlsx*